IN THE CLAIMS:

Please CANCEL claims 1-16, without prejudice or disclaimer.

Please ADD new claims as follows:

1-16. (CANCELLED)

17. (NEW) An optical amplifier comprising:

an amplification medium for amplifying wavelength-division-multiplexed (WDM) light passed through an upstream transmission line using an excitation light;

a measurement part for measuring both of optical power of said WDM light inputted to said amplification medium and optical power of said WDM light outputted from said amplification medium;

a variable gain equalizer connected to a downstream transmission line and capable of variably gain equalizing of said WDM light amplified by said amplification medium;

a database for holding loss-wavelength characteristics data according to a plurality of transmission line types and gain-wavelength characteristics data according to a plurality of amplifying medium types with an input optical power and an output optical power as parameters;

an arithmetic part for computing an inverted characteristic of passing-wavelength characteristic of said transmission line and said amplification medium, on the basis of said loss-wavelength characteristic data according to a type of said transmission line held in said database and said gain-wavelength characteristic data according to a type of said amplification medium specified by said parameters, held in said database; and

a setting part for setting a passing-wavelength characteristic of said variable gain equalizer to said inverted passing-wavelength characteristic computed by said arithmetic part.

18. (NEW) The optical amplifier as set forth in claim 17, further comprising:

an acquisition part for acquiring the type of said transmission line used,

wherein said arithmetic part computes the inverted characteristic of passing-wavelength characteristic of said transmission line on the basis of said loss-wavelength characteristic data according to the type of said transmission line acquired by said acquisition part.

19. (NEW) The optical amplifier as set forth in claim 17, wherein:

said database holds wavelength characteristics respectively corresponding to the input optical power and output optical power of a centralized amplification type transmission line; and

said arithmetic part is constructed to compute said inverted passing-wavelength

characteristic, based on said wavelength characteristics corresponding to said input optical power and output optical power held in said database.

20. (NEW) The optical amplifier as set forth in claim 19, wherein said arithmetic part is constructed to compute said inverted passing-wavelength characteristic so that gain of said centralized amplification type transmission line is constant.

21. (NEW) The optical amplifier as set forth in claim 17, wherein:

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic, based on said data representing wavelength characteristics that respectively correspond to transmission line types, contained in light received from a first direction side and provided on said first direction side, and based on the number of multiplexed wavelengths contained in light received from a second direction side; and

said setting part is constructed to set a passing-wavelength characteristic of a portion in the first direction side of said transmission line.

22. (NEW) The optical amplifier as set forth in claim 17, wherein:

said amplification medium employs a centralized amplification type transmission line to amplify WDM light; and

said setting part is constructed to set said passing-wavelength characteristic, based on input optical power and output optical power of said centralized amplification type transmission line, after said variable gain equalizer has been booted.

23. (NEW) The optical amplifier as set forth in claim 21, wherein:

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic for said first direction side, based on the data contained in received light; and

said setting part is constructed to set the inverted passing-wavelength characteristic to a portion in the first direction side of said transmission line, based on the data held in said database.

24. (NEW) The optical amplifier as set forth in claim 21, wherein:

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic for said first direction side, based on the first data from the self-station; and

said setting part is constructed to set said inverted passing-wavelength characteristic to a

portion in the first direction side of said transmission line, based on second data held in said database.

25. (NEW) An optical amplifier comprising:

an amplification medium for amplifying wavelength-division multiplexed (WDM) light propagating in a transmission line using an excitation light;

a measurement part for measuring optical power of said excitation light;

a variable gain equalizer connected to a downstream transmission line and capable of variably gain equalizing of said WDM light amplified by said amplification medium;

a database for holding loss-wavelength characteristics data according to a plurality of transmission line types and gain-wavelength characteristics data according to a plurality of amplifying medium types with an excitation power as parameter;

an arithmetic part for computing an inverted characteristic of passing-wavelength characteristic of said transmission line and said amplification medium, on the basis of said loss-wavelength characteristics data according to a type of said transmission line held in said database and said gain-wavelength characteristic data according to a type of said amplification medium specified by said parameter, held in said database; and

a setting part for setting a passing-wavelength characteristic of said variable gain equalizer to said inverted passing-wavelength characteristic computed by said arithmetic part.

26. (NEW) The optical amplifier according to claim 25, further comprising:

an acquisition part for acquiring the type of said transmission line used,

wherein said arithmetic part computes the inverted characteristic of passing-wavelength characteristic of said transmission line on the basis of said loss-wavelength characteristic data according to the type of transmission line acquired by said acquisition part.

27. (NEW) The optical amplifier as set forth in claim 25, wherein said measurement part measures a power of excitation light on the input side of said amplification medium.

28. (NEW) The optical amplifier as set forth in claim 25, wherein said database further holds information about a transmission line length connected to said amplification medium.

29. (NEW) The optical amplifier as set forth in claim 28, wherein said arithmetic part

is constructed to compute said inverted passing-wavelength characteristic, based on data causing the number of multiplexed wavelengths and a wavelength characteristic due to a stimulated Raman scattering effect to correspond to each other.

30. (NEW) The optical amplifier as set forth in claim 26, wherein said acquisition part is constructed to obtain at least either information about a type of transmission line connected to said amplification medium or information about a length of said transmission line, from either monitoring light from an upstream side of said transmission line or a device monitoring system that monitors a status of transmission.

31. (NEW) The optical amplifier as set forth in claim 25, wherein:

said database holds a wavelength characteristic corresponding to a power of excitation light of a transmission-line amplification type transmission line; and

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic, based on said wavelength characteristics respectively corresponding to said power of excitation light held in said database and said output optical power measured by said measurement part.

32. (NEW) The optical amplifier as set forth in claim 25, wherein:

said arithmetic part is constructed to computer said inverted passing-wavelength characteristic, based on said data representing wavelength characteristics that respectively correspond to transmission line types, contained in light received from a first direction side and provided on said first direction side, and based on the number of multiplexed wavelengths contained in light received from a second direction side; and

said setting part is constructed to set a passing-wavelength characteristic of a portion in the first direction side of said transmission line.

33. (NEW) The optical amplifier as set forth in claim 25, wherein:

said amplification medium employs a Raman amplification type transmission line to amplify WDM light; and

said setting part is constructed to set said passing-wavelength characteristic, based on power of excitation light of said Raman amplification type transmission line, after said variable gain equalizer has been booted.

34. (NEW) The optical amplifier as set forth in claim 32, wherein:

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic for said first direction side, based on the data contained in received light; and

said setting part is constructed to set the inverted passing-wavelength characteristic to a portion in the first direction side of said transmission line, based on the data held in said database.

35. (NEW) The optical amplifier as set forth in claim 32, wherein:

said arithmetic part is constructed to compute said inverted passing-wavelength characteristic for said first direction side, based on the first data from the self-station; and

said setting part is constructed to set said inverted passing-wavelength characteristic to a portion in the first direction side of said transmission line, based on second data held in said database.